Oceanographic and Ecosystem Data
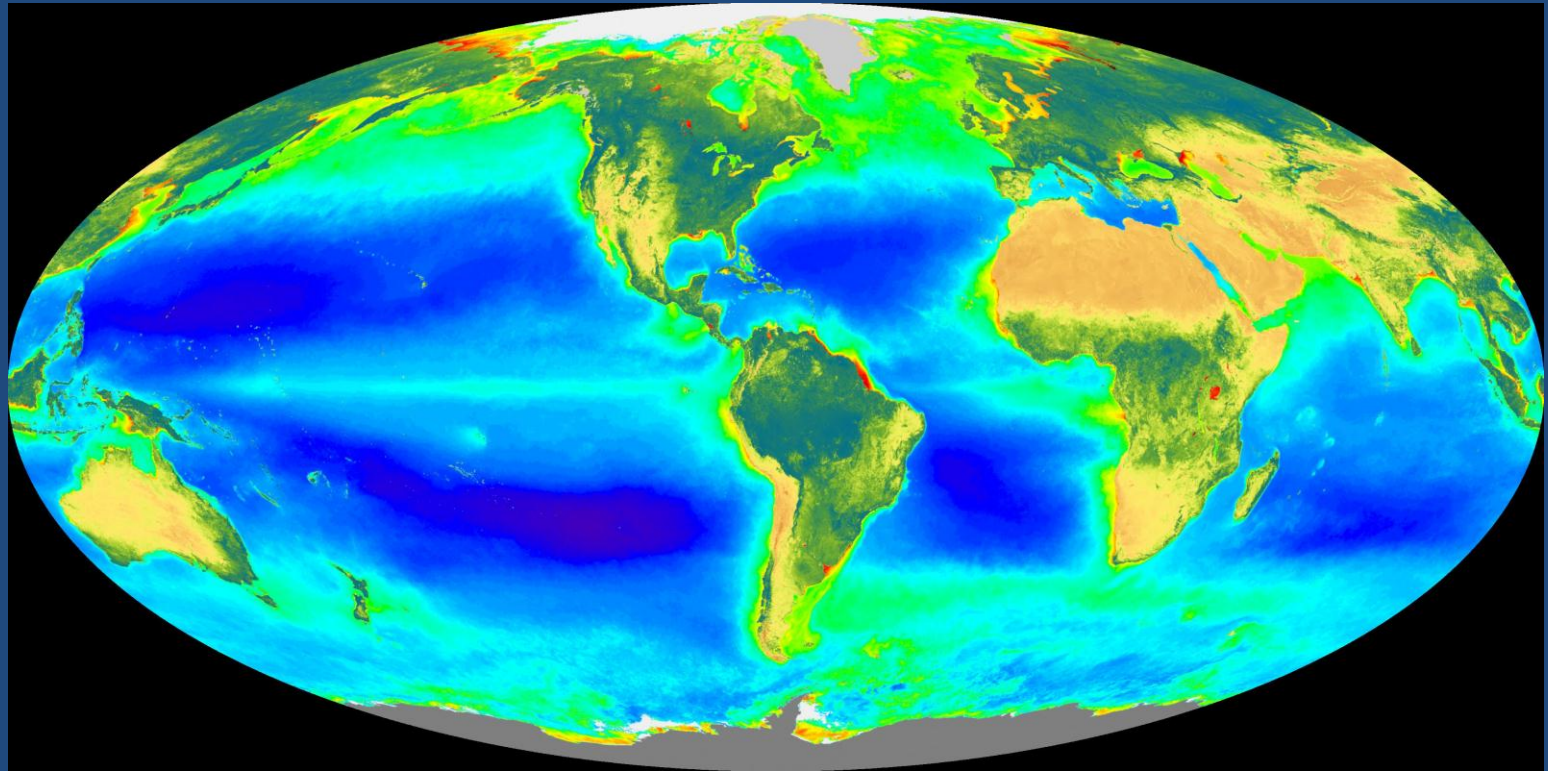
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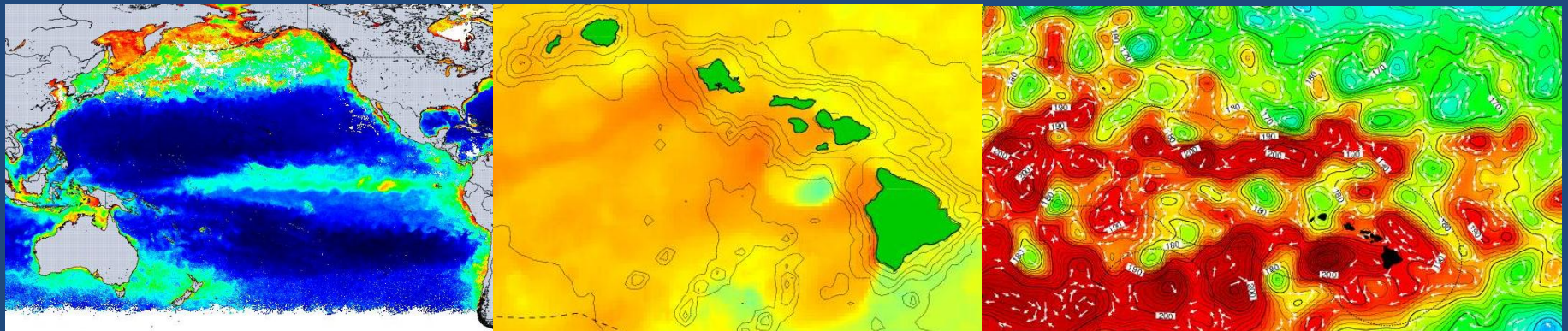
NOAA Fisheries

Remotely-sensed Oceanographic Data

Satellite remotely-sensed data base (http://oceanwatch.pifsc.noaa.gov/)

- temp(SST) (1982),
- salinity(2012),
- chlorophyll (1997),
- sea surface height (SSH)(1993),
- wind (various)

Spatial resolution: 250 m to 40 km, temporal resolution: 2-day to monthly.

← → C 🔒 oceanwatch.pifsc.noaa.gov/las/servlets/dataset ☆ ≡

OceanWatch LAS

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Select Data

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LAS UI Version
6.5.2.1

Datasets

Welcome to LAS.
This session will expire after 180 minutes of inactivity.

Click on a dataset to continue or an ⓘ for information about a dataset.   Help

Select dataset:

ⓘ 01. Monthly - AVHRR Pathfinder v4.1 (1985-2002) and GAC (2003-Present) Sea-Surface Temperature

ⓘ 02. Monthly - AVHRR Pathfinder v5 and v5.1 (1982 - 2009) Sea-Surface Temperature

ⓘ 03. Monthly - GOES Sea-Surface Temperature

ⓘ 04. Monthly - GOES-POES Sea-Surface Temperature

ⓘ 05. Monthly - MODIS Aqua Ocean Color

ⓘ 06. Monthly - SeaWiFS Ocean Color

ⓘ 07. Monthly - Aquarius V2 Sea-Surface Salinity

ⓘ 08. Monthly - Merged-Mission Sea-Surface Height and Geostrophic Currents

ⓘ 09. Monthly - Topex/Jason Sea-Surface Height and Geostrophic Currents

ⓘ 10. Monthly - QuikSCAT Ocean Surface Winds

ⓘ 11. Weekly - AVHRR Pathfinder v4.1 (1985-2002) and GAC (2003-Present) Sea-Surface Temperature

ⓘ 12. Weekly - AVHRR Pathfinder v5 and v5.1 (1981 - 2009) Sea-Surface Temperature

ⓘ 13. Weekly - GOES Sea-Surface Temperature

ⓘ 14. Weekly - GOES-POES Sea-Surface Temperature

ⓘ 15. Weekly - MODIS Aqua Ocean Color

ⓘ 16. Weekly - SeaWiFS Ocean Color

ⓘ 17. Near Real-Time Weekly - MODIS Aqua Ocean Color

ⓘ 18. Weekly - Aquarius V2 Sea-Surface Salinity

ⓘ 19. Weekly - Topex/Jason-Mission Sea-Surface Height and Geostrophic Currents

ⓘ 20. Weekly - Merged-Mission Sea-Surface Height and Geostrophic Currents

ⓘ 21. Near Real-Time Weekly - Topex/Jason-Mission Sea-Surface Height and Geostrophic Currents

ⓘ 22. Near Real-Time Weekly - Merged-Mission Sea-Surface Height and Geostrophic Currents

ⓘ 23. Weekly - QuikSCAT Ocean Surface Winds

ⓘ 24. 3-Day - AVHRR-GAC Sea-Surface Temperature

ⓘ 25. 2-Day - GOES Sea-Surface Temperature

ⓘ 26. 2Day - GOES-POES Sea-Surface Temperature

ⓘ 27. 2-Day ASCAT Ocean Surface Winds

ⓘ 28. 3-Day - QuikSCAT Ocean Surface Winds

ⓘ 29. Smith and Sandwell v. 8.2: 1/30-degree topography and bathymetry

ⓘ 30. COADS Climatology

ⓘ 31. Levitus Climatology

ⓘ 32. SeaWiFS Monthly Ocean Color - Climatology (1997 - 2010)

ⓘ 33. Aqua MODIS Monthly Ocean Color - Climatology (2002 - 2012)

ⓘ 34. Pathfinder v5 Monthly Sea-Surface Temperature - Climatology (1985 - 2001)

In-situ Oceanographic data

- Data collected from NOAA Ships
- AUV, Glider,
- pop-up, and
- archival tags on animals,
- TDRs on commercial longlines,
- moorings, etc.

   Data include
  - vertical profiles of temp, salinity, chlorophyll
  - passive acoustics,
  - visual imagery,
  - fish habitat depth and temperature,
  - longline temperature and depth, etc.
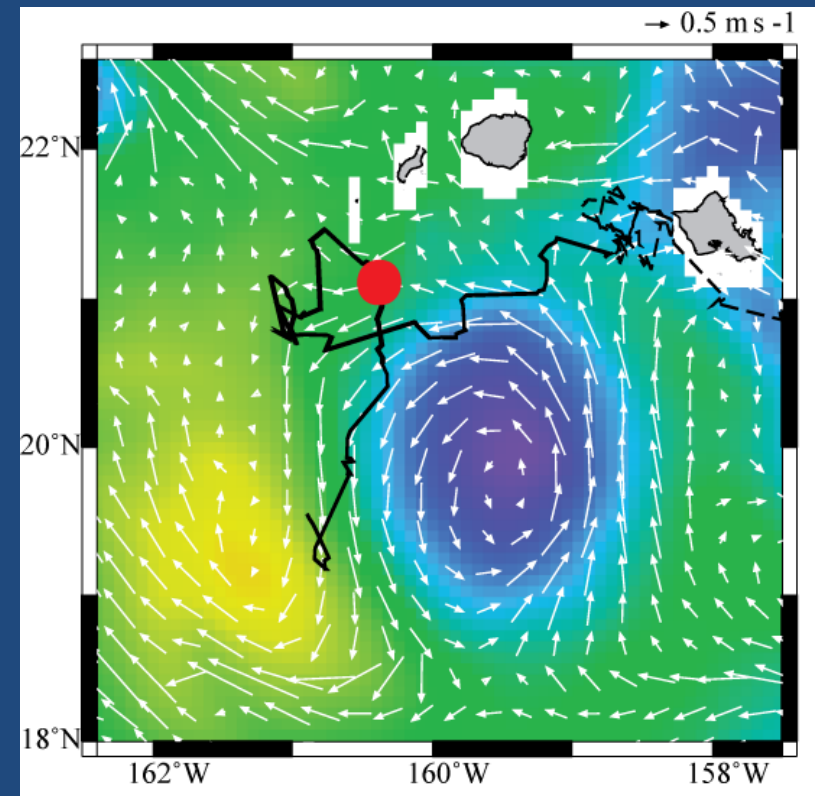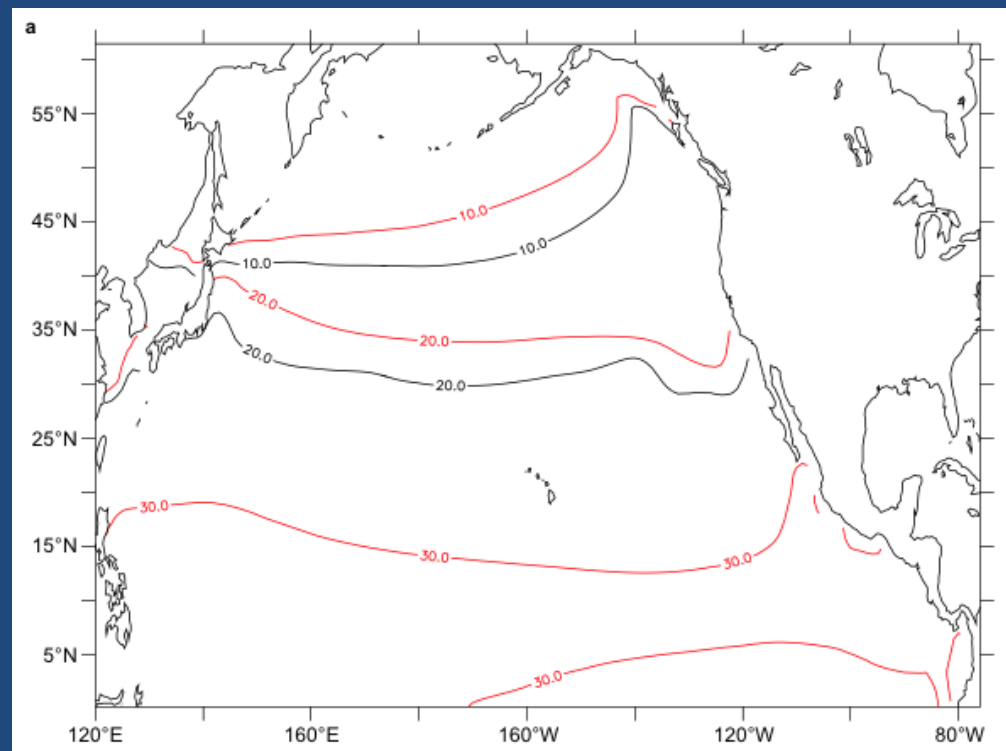
Other In-situ Data used by the Center
- Argos Drifting and Profiling floats,
- TAO Array,
- World Ocean Atlas provide currents, oxygen, nutrients, etc.

Oceanographic data from models and Indicators

Models – ocean (NLOM, HYCOM) (regional, Basin-wide), climate (IPCC) (physical and biological)
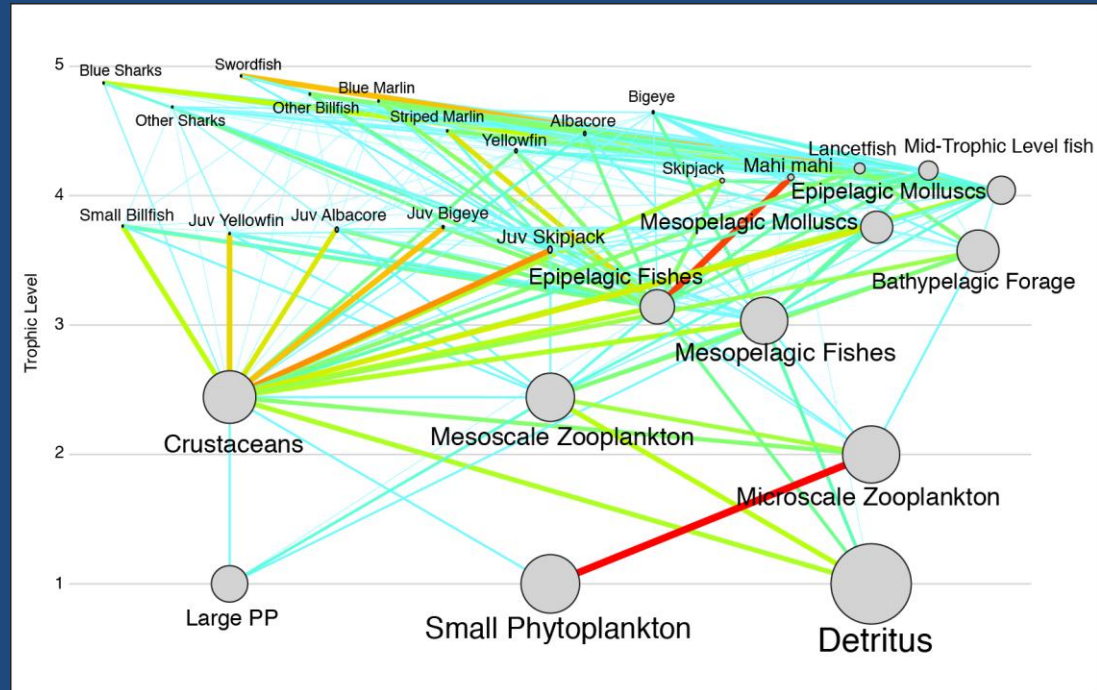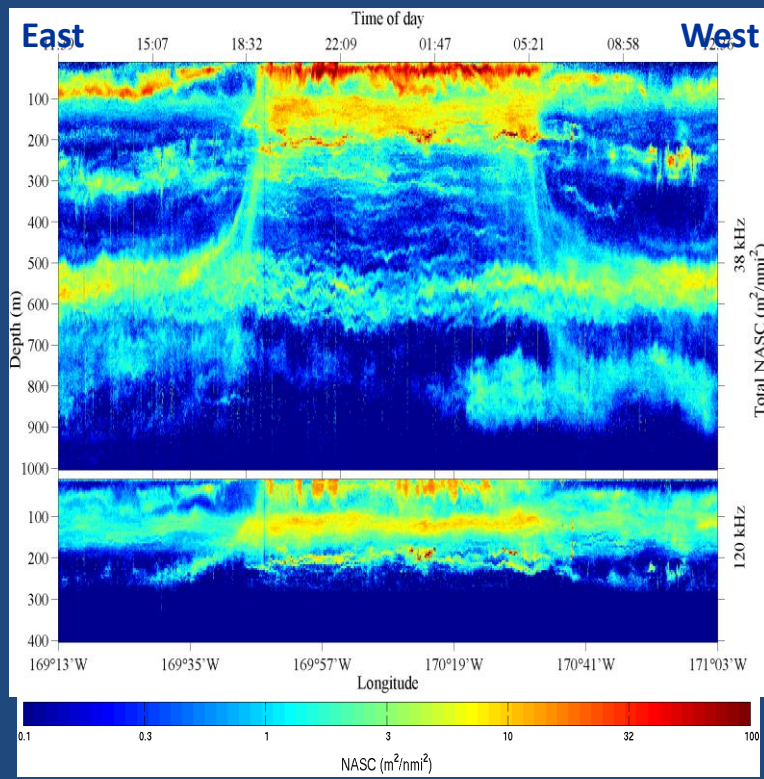
Basin-scale indices: ENSO, PDO, etc

Ecosystem Data

Fisheries Data – Observer, logbook (effort, catch by species, operational information)

Active acoustic data and trawl data for scattering layers from cruises

Passive acoustics from moorings and ships for cetaceans and fish vocalizations
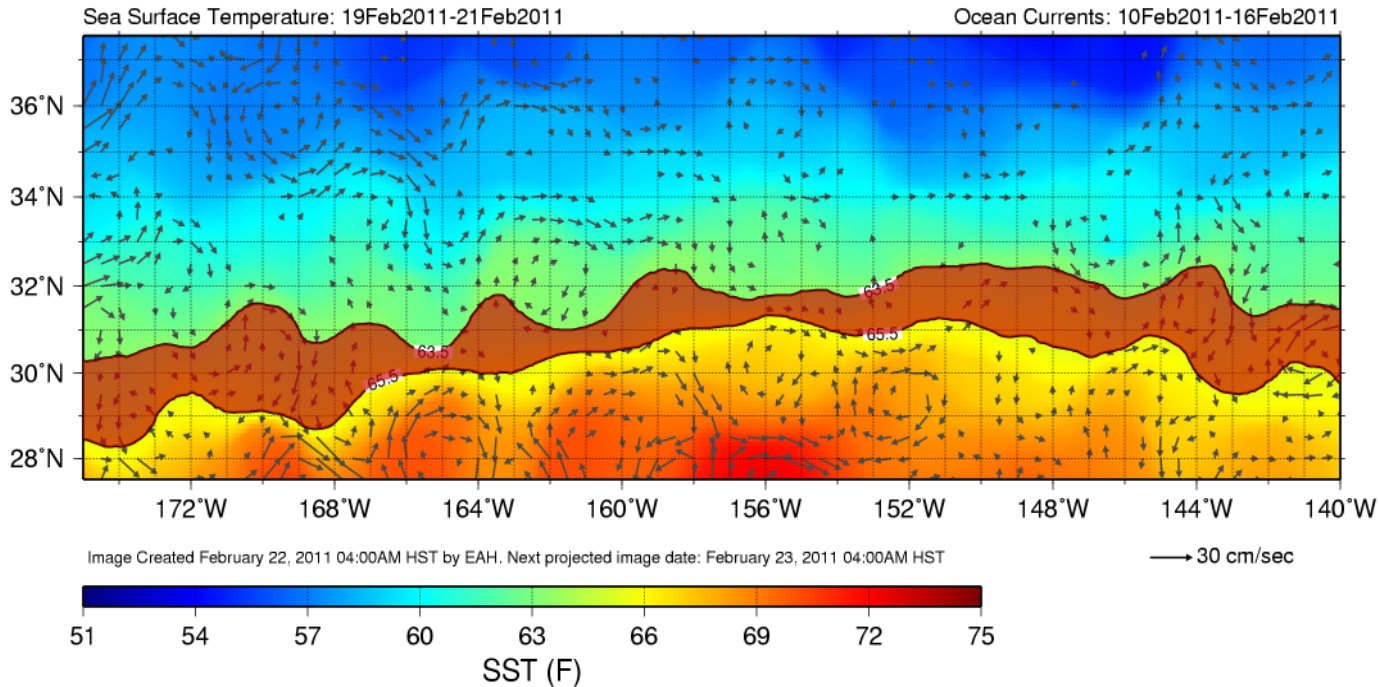
Model Data – Ecopath/Ecosim, Size-based, Sepodym

Some ways these data used in stock assessment/population dynamics at the Center

1. In GAMs to produce standardized CPUE time series – SST, SSH, gradients, persistence, etc.

2. In GAMs built from observer data and applied to logbook data for species not fully reported in logbooks – SST

3. In habitat models to refine fishing effort time series by using only effort within a species habitat (depth) – subsurface temp

4. Linking dynamics of a feature to population dynamics – TZCF, SECC, TurtleWatch

5. Linking population productivity or spatial shifts to basin-scale indicators, ENSO, PDO - regime shifts

6. Using ecosystem models that capture both bottom-up and top down responses – Ecopath/Ecosim, Sepodym, Size-based models

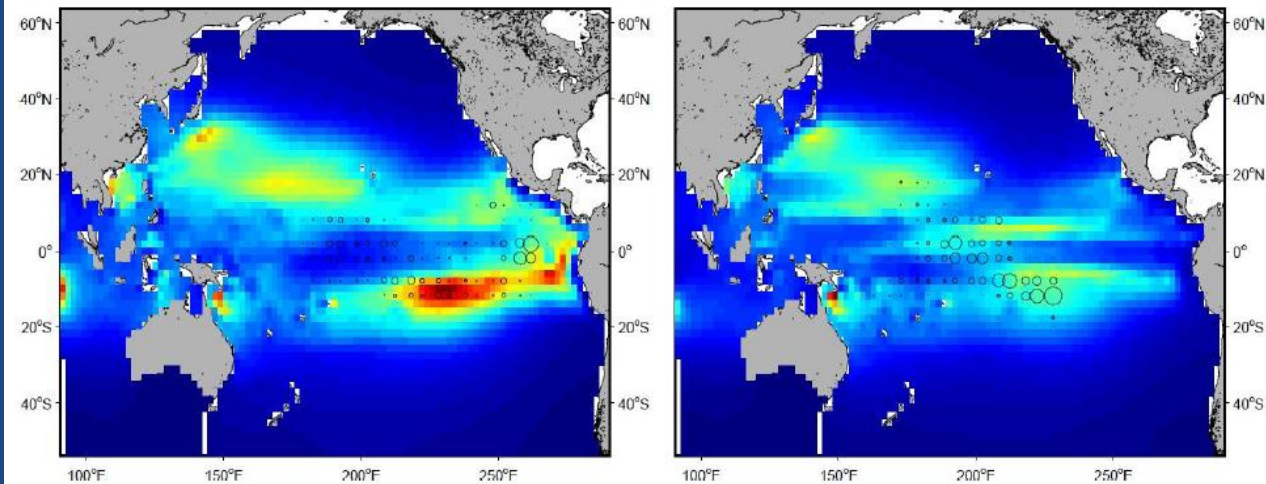# Identifying location of a dynamic ocean feature with high probability of sea turtle bycatch

Predicting the spatial distribution and dynamics of swordfish from an ecosystem model (SEPODYM)
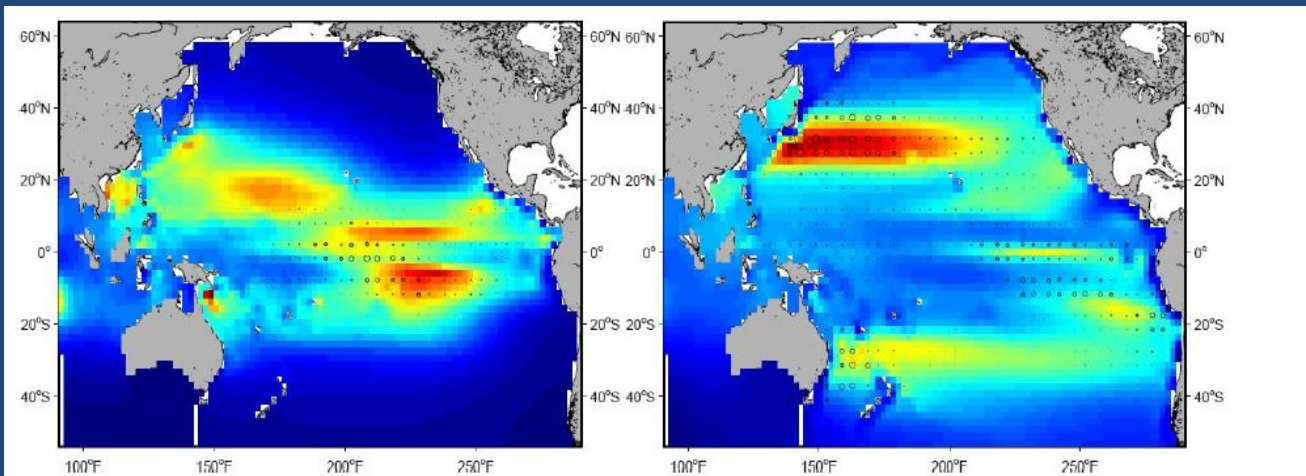

Mean distributions (in Nb/sq.km) of young (left) and adults (right) from 1992-2001 overlaid with Korean (L5) and Japanese (L4) CPUEs (circles), respectively.

Mean distributions of young swordfish biomass (N/sq.km) overlaid with Korean CPUEs (L5) during the 1998 El Niño event (left, Oct. 1997 – Feb. 1998) and during La Niña (right, Jul. 1998 – Jan. 1999)
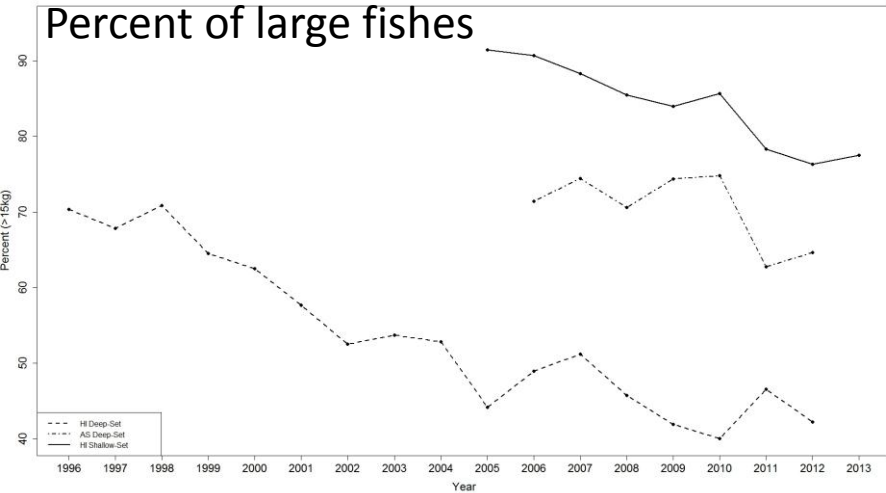
Assessing impacts to Hawaii's longline fishery from fishing and climate change with an ecosystem model (Ecopath/Ecosim) driven by output from a climate model (GFDL's ESM)
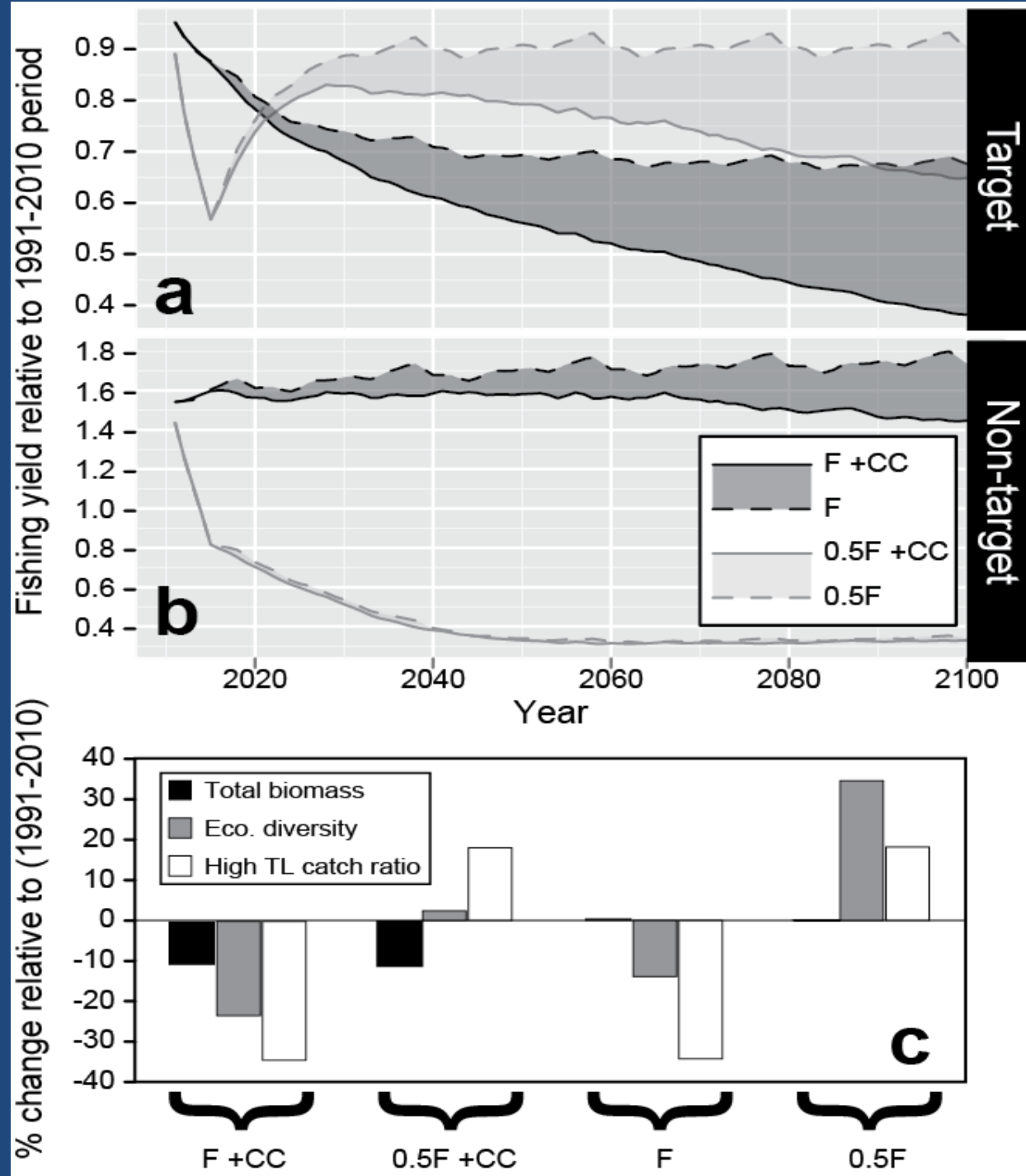
Ecosystem Indicators for Am Samoa, Hawaii Swordfish and Hawaii Tuna Longline Fisheries
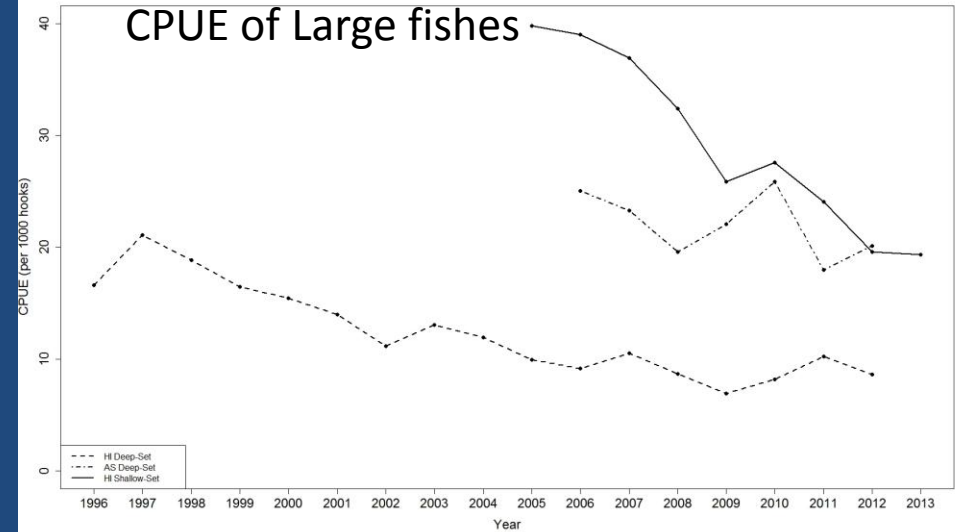

Percent of large fishes

CPUE of Large fishes

CPUE of Small fishes
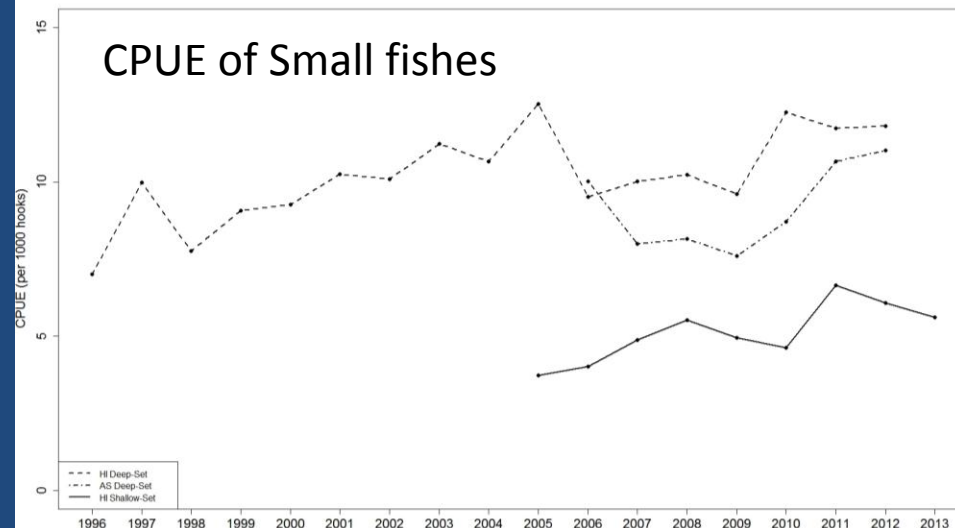
Going forward in an EAFM Context

- Ecosystem Status Reports or Ecosystems Considerations chapters presented together with stock assessments. However, understanding the appropriate linkages and building the indicators remain a challenge.

- Linking single species stock assessments with ecosystem models to: i) evaluate harvests relative to system productivity, ii) ecosystem impacts from all fisheries removals, and iii) run ecosystem MSEs

- Move from single species to ecosystem assessments

Summary

- A broad suite of environmental and ecosystem data are currently available and are expected to expand over time.

- Oceanographic data have been and are used (indirectly) in Center stock assessments.

- Considerable use of environmental and ecosystem data at the Center but primarily in research rather than in operational assessments.

- Considerable potential but also challenges exist in moving to EAFM. Subject of new NMFS Stock Assessment Improvement Plan.